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**NATIONAL STANDARD OF THE
PEOPLE'S REPUBLIC OF CHINA**

GB/T 17410-2023

Replacing GB/T 17410-2008

Organic heat transfer material heaters

有机热载体炉

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Foreword

This document complies with the provisions of GB/T 1.1-2020 "Standardization Work

Guidelines Part

1. Structure and Drafting Rules of Standardization Documents" Drafting. This document replaces GB/T 17410-2008 "Organic Heat Carrier Furnace". Compared with GB/T 17410-2008, except for structural adjustment and editing In addition to sexual changes, the main technical changes are as follows:

- a) Changed the content of "scope" (see Chapter 1, Chapter 1 of the.2008 edition);
- b) Changed the model requirements (see 4.1, 4.1.1 of the.2008 edition);
- c) The "Other" category is deleted in "Table 3 Furnace Installation Type Code" (see Table 3, Table 3 of the.2008 edition);
- d) Changed the specification requirements in the "Rated Thermal Power Specifications" series (see Table 4, Table 4 of the.2008 edition);
- e) The heating source category code and variety code have been changed (see 4.2.5, Table 5, 4.1.1.5, Table 5 of the.2008 version);
- f) The requirement of "General Provisions" is deleted (see 5.1 of the.2008 edition);
- g) The requirements for thermal efficiency have been changed (see 5.1.2, 5.2.2 of the.2008 edition), and "Table 6 Thermal Efficiency" has been deleted (see Table 6 of the.2008 edition);

1 Scope

China's national standard for organic heat transfer material heaters - the fired heaters that circulate thermal oil instead of raising steam. It specifies the model and code designation, the requirements, the test methods, the inspection rules, and the marking, packaging, transport and storage, and it applies to fixed heating devices of not less than 0.1 MW rated thermal power fired on gaseous, liquid or solid fuel, in both the vapour-phase and the liquid-phase forms. It does not apply to electrically heated units or to units below 0.1 MW. A thermal oil heater exists because of a limitation of water: to reach 300 degrees Celsius with steam you need roughly 90 bar, with the pressure vessel, the water treatment, the blowdown and the licensed operation that follow. An organic heat carrier reaches the same temperature at near-atmospheric pressure, which is why process heating in chemicals, textiles, timber, food and asphalt is done this way. The hazard changes rather than disappears. The fluid is combustible and it degrades: local overheating at the tube wall cracks it into light ends that raise the vapour pressure and into heavy ends and coke that foul the tube, and a fouled tube runs hotter still. A leak is a fire rather than a scald, and the

system is hot, so a leak finds an ignition source. Almost everything in the standard follows from that. It sets the requirements for design and construction with attention to film temperature and circulation velocity, the safety devices and interlocks - flow, temperature, level, expansion and the deaeration arrangements - the combustion equipment and controls, the material and welding requirements, the thermal performance and efficiency, and the tests and inspections by which each is demonstrated. Issued on 7 September 2023 and in force since 1 April 2024, it replaces GB/T 17410-2008.

This document specifies the model and code number, requirements, test methods, inspection rules, marking, packaging, transportation and storage of organic heat carrier furnaces. This document is applicable to fixed heating devices with a rated thermal power of not less than 0.1MW and using gas energy, liquid energy, and solid energy as heating sources. Organic heat carrier gas phase furnace (hereinafter referred to as "gas phase furnace") and organic heat carrier liquid phase furnace (hereinafter referred to as "liquid phase furnace"). This document does not apply to organic heat carrier furnaces that use electric energy as the heating source and organic heat carrier furnaces with a rated thermal power of less than 0.1MW.

2 Normative reference documents

The contents of the following documents constitute essential provisions of this document through normative references in the text. Among them, the dated quotations For undated referenced documents, only the version corresponding to that date applies to this document; for undated referenced documents, the latest version (including all amendments) applies to this document.

GB/T 150.3 Pressure vessels Part

3 Design

GB/T 150.4 Pressure vessels Part

4 Manufacturing, inspection and acceptance

GB/T 191 Packaging, storage and transportation pictorial mark

GB/T 699 High-quality carbon structural steel

GB/T 711 High-quality carbon structural steel hot-rolled steel plates and steel strips

GB/T 713 Steel plates for boilers and pressure vessels

GB/T 1226-2017 General pressure gauge

GB/T 3087 Seamless steel pipes for low and medium pressure boilers

GB/T 3274 Carbon structural steel and low alloy structural steel hot-rolled steel plates and

strips

GB/T 5310 Seamless steel pipes for high pressure boilers

GB/T 5468 Boiler smoke test method

GB/T 7251.1 Low-voltage switchgear and control equipment - Part

5 Manufacturing

GB/T 16507.6 Water tube boilers Part

6 Bus trunk system (bus duct)

GB/T 8163 Seamless steel pipes for conveying fluids

GB/T 10180 Thermal performance test procedures for industrial boilers GB/T 13306
Signage

GB/T 16157 Determination of particulate matter in exhaust from stationary pollution
sources and sampling method for gaseous pollutants

GB/T 16507.4 Water tube boiler Part